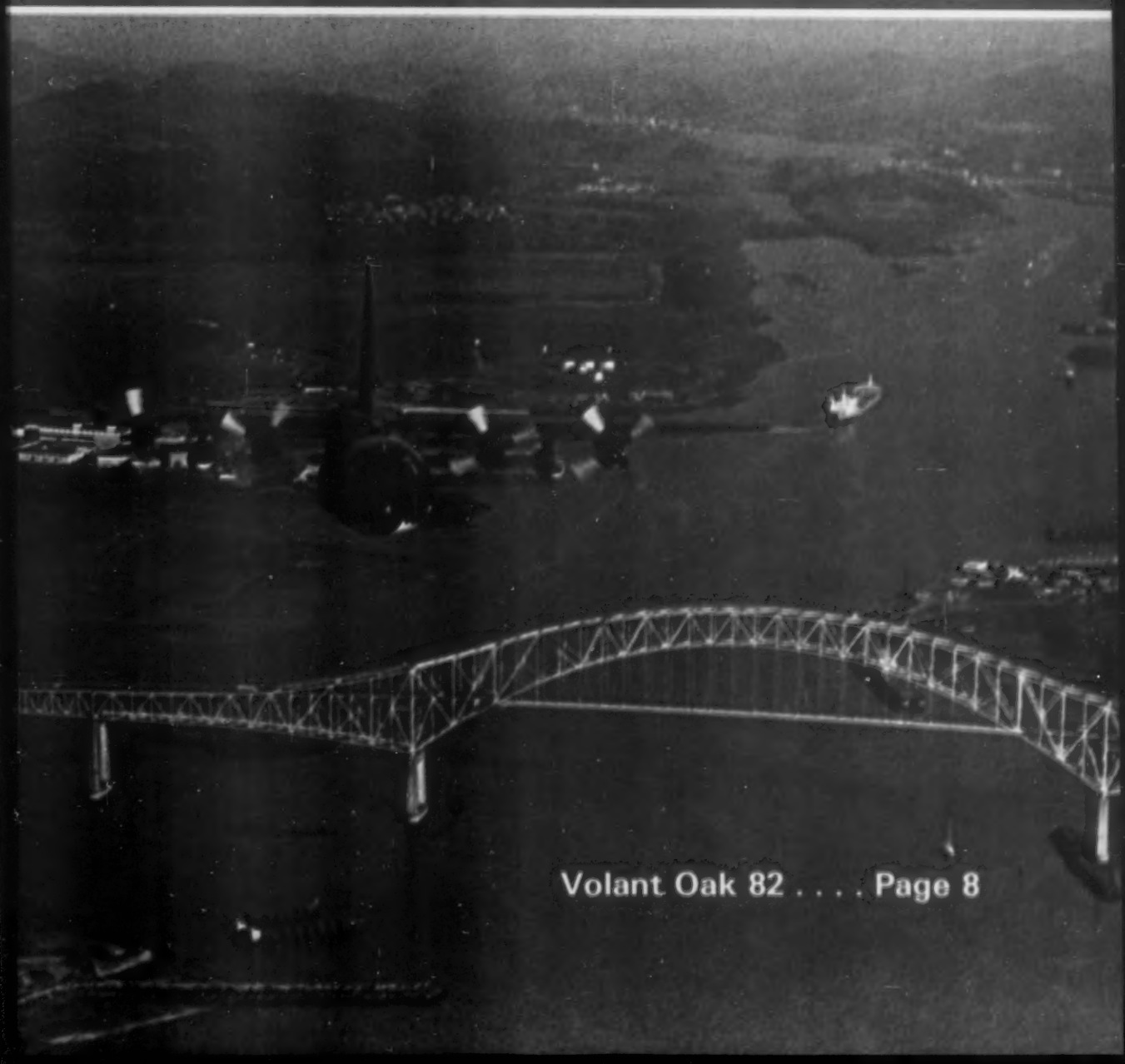
The MAC Flyer

JANUARY 1983



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The MAC Flyer

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For Greater Safety and Efficiency in MAC Air Operations.

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Cover photo: Volant Oak C-130 overflies Thatcher Ferry Bridge over the Panama Canal. Photo courtesy: Det 5, 1361 AVS.

New Year's Resolution

Hear Ye! Hear Ye! Hear Ye! All you unfortunate wretches who are unable to come up with a suitable New Year's resolution—take heart! The benevolent editors of your friendly flying safety magazine, *The MAC Flyer*, have just the solution. Merely resolve to—grab some paper; beg, borrow, or steal a typewriter; organize your thoughts; and create a literary masterpiece for publication in this venerable periodical. Sound too difficult? Not really. Take a quick glance at the rules below, and you will see just how easy it can be to have your very own New Year's resolution come true. Think about it! When was the last time *anyone* had a chance to keep a New Year's resolution? But don't delay, for the end of the contest is fast approaching. ★

The Rules

The 1983 MAC Flying Safety Writing Contest is conducted according to MACR 900-3 and the following rules. All entries must be original, unpublished and postmarked no later than 31 March 1983. Stories must be between 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages); poetry should be about 75 to 100 lines. Entries must contain an *aviation safety message*. Manuscripts must be double-space typed and submitted in *two copies*. Identify entries by title only, and attach a cover sheet showing the author's name, address, duty phone number and unit. Also, the cover sheet should contain a brief autobiography.

The contest is open to anyone. Entries qualifying under the above rules earn their author a free C.R. Terror T-shirt *(so indicate your size)* and a free 1-year subscription to *The MAC Flyer*. However, contest prizes (desk sets and plaques) may only be awarded to military and civilian employees of the Department of the Air Force or Air Reserve Forces. Other entrants may be selected for Honorable Mention in a Special Category. All winning stories will be published in *The MAC Flyer*. Entries should be addressed to:

Safety Writing Contest
HQ MAC/IGFE
SCOTT AFB IL 62225

Farewell to ARRS

by Mr. Ralph R. Padfield
Madla, Norway

The following is a transcript of the speech given on 16 May 1998, by Major General John P. Covington, former Aerospace Rescue and Recovery Service Commander, during his retirement dinner. With his permission, The MAC Flyer *is publishing it hoping you'll find it as entertaining and beneficial as we did*—Ed.

Gentlemen and ladies of the Aerospace Rescue and Recovery Service:

As I sat in my study trying to think of something meaningful to say tonight, I glanced at perhaps three dozen mementos displayed around the room. Most of these things I have saved over the years are probably not worth more than a few dollars, but to me, they are priceless. These mementos represent my 30 years as a pilot and an Air Force officer.

In the back of the bottom-most drawer of my desk lies one memento hidden from view. It's hidden there not because of its insignificance, since it's the most important item I have chosen to keep, but because it represents a mistake—a personal failure. The "safety folks" like to call it, a "pilot error." *My own personal pilot error.* It's something I often considered throwing away, for its revelation would have, at the least, embarrassed me. At worst, I feared that it would be the proverbial "kiss of death" to my career. And that was a risk I didn't want to take.

The incident happened about 27 years ago, but I remember it as if it were only yesterday. I was a shiny new first lieutenant, flying with a rescue squadron out of Elmendorf AFB. I must tell you now, that being a copilot in the right seat of a four-engine cargo aircraft was not my idea of the Rickenbacker-character I aimed to be. I respected the old bird (look who is talking now!) and I enjoyed the occasional rescue mission. However, the C-130 was big, semi-maneuverable, and so downright slow I didn't really consider it flying. For me, flying meant fighters—fast, high and solo. I wanted to dance and swirl and soar and do a thousand things you've never dreamed of—just like the poem says.

I wanted a reassignment to fighters and I wanted it yesterday! My dream sheet was full of aircraft with "F" as the first designator. The assignments folks got so sick of my constant pleadings that they wouldn't even talk to me on the telephone. Finally, after months of goading and conniving, I got my first choice. It was an F-4 to Germany—but I had to make a deal. Before I could slip into a G-suit, I had to finish my 2-year commitment in Alaska in the right-seat of the C-130.

I was both elated and crushed. It meant 17 more months of reading checklists and flying search patterns. I thought I'd go mad. I had to find an outlet to make those 17 months go faster.

This "outlet" turned out to be a local FBO at Merrill Field in Anchorage. (An FBO, for you non-flyers, can be described as the aviation equivalent of an automobile dealership, a service station, and a driving school, all rolled into one.) Right after pinning on my Air Force wings, I had taken the FAA written exam and received my commercial single-engine certificate. With that and the GI bill, I soon received a Certified Flight Instructor rating. CFIs must be the lowest paid professional pilots in the world, but I didn't give a hoot about the money. All I wanted to do was fly on my own, or at least be in command. The fixed base operator was more than happy to hire me part -

Special Category Winner, 1982 MAC Flying Safety Writing Contest

time. With my background and Air Force training, I had more experience than most of his young CFIs and was not likely to do something stupid, especially with a student aboard.

Then the most wonderful thing happened. I had been flying as a CFI for about a year (and only 4 months until my reassignment), when the FBO called one day. He asked if I'd like to take a group of passengers on a month-long flying tour of Alaska's North Slope. Would I! When do we leave? "In 5 weeks," he answered. Arranging leave would be difficult, but, yes, I would do it. I had to cash in all of my favors with the scheduler as well as throw in a case of beer. Then I had to promise to go on a particularly undesirable TDY as soon as I returned, but I finally got my leave.

On the morning of June 26, I was at Merrill Field ready to pick up the airplane and passengers. The passengers turned out to be an University of Colorado anthropology professor and two of his star graduate students planning to do a study of Eskimo and Indian life on Alaska's North Slope. I don't remember the names of the professor and the male student, but the name of the coed I will always remember. She was called Shining Eyes Morning-Star and was the most beautiful girl I had ever seen. She was a full-blooded Arapahoe and for the first few moments I saw her, I could hardly speak. If I have ever had any fighter pilot cool, I lost it all as I gazed into her truly shining eyes.

Despite my infatuation with Shining Eyes, or perhaps because of it, I was the epitome of the professional pilot. I flight planned carefully, preflighted meticuously, and even weighed all the passengers and baggage on a bathroom scale. I checked the survival gear and made sure there were extra tools on board. These included screwdrivers and wrenches to tighten things loosened by bumpy gravel strips and a metal file to take the nicks out of the propeller. Within 2 hours, we were on our way. Takeoff from Merrill Field was smooth, although the takeoff run was longer than I had anticipated. I decided then to split the load when flying into the shorter North Slope airstrips.

The first week and a half was uneventful. I was flying with expertise and getting to know Shining Eyes. It was on the 13th day, of all days, when *it* happened. After dropping off the professor and the other student at a small Eskimo village, I was on my way back to pickup Shining Eyes and the rest of our gear. The sky was a brilliant Arctic blue; the visibility was virtually unlimited. I was flushed with my "success" as a bush pilot and looking forward to a half-hour flight alone with Shining Eyes sitting beside me in the cockpit.

Shining Eyes Morning-Star was the most beautiful girl I had ever seen.

The plane was a Beechcraft Sundowner, a normal tricycle-geared plane. A tail-dragger would have been better suited for the North Slope, but this particular aircraft worked okay. It was comfortable, and certified for aerobatics. *That* was a temptation. Except for the occasional spin with my students (intentional of course), I had not flown aerobatics since flight training. This then was my chance. The aircraft was light, the sky empty, and I had a machine that could do it. I climbed the Sundowner to 5,000 feet, pushed the nose over to pick up airspeed, and pulled into a loop.

Before I knew it I was approaching the village where Shining Eyes was waiting. From 3,000 feet, I could not distinguish any faces, but standing by the runway was someone wearing a red parka, similar to the one Shining Eyes had, so I figured it had to be her. My aerobatic "coffee break" had already taken up a good deal of time, so I decided, hot-shot pilot that I was, to simply make an impressive landing in front of my Indian maiden. I held 3,000 feet until directly over the runway, cut the throttle to idle, trimmed off some airspeed, and began a spiraling descent toward the runway.

As soon as I made the last turn from base to final, I knew I had misjudged the wind velocity off the Bering Sea. I was coming in low and slow and would never make it to the runway on the glide. Feeling somewhat disappointed in having missed my spot, I prudently added throttle and was able to maintain a nearly flat glide to the edge of the gravel strip. I dropped full flaps and cut the engine just as I passed over the edge of the runway, but the airplane would not descend! It was gliding along in ground effect. I pulled up the nose to lose airspeed, but did it too fast. The light craft ballooned into the

air, stalled out, and headed quickly earthward. So much for my impressive squeak-on landing, I thought. But my ride was not over yet. The springy Beechcraft landing gear hit the ground hard and immediately bounced the airplane back into the air. It flew, or rather wallowed slightly, then stalled again. Another bounce and I was in the air once more.

I was now running out of runway—but fast! The smart thing to do would have been to swallow my pride, gun the engine, and come around again for another try. I still thought, though, I could save face and salvage the landing. Overconfidence dies hard, and aborting the landing would have been a sure proof of my mistake. If I could just stop the airplane on this landing, I reasoned, I could give Shining Eyes some story about crosswinds on the runway. In a split second on the second bounce, I succumbed to every pilot's worst enemy—his own pride. Sometimes skill and luck can save a bad judgement call, but this time it was impossible.

The Sundowner continued bouncing down the runway. I held on like a cowboy on a bucking bronco. It finally settled down, but was still moving pretty fast as the end of the gravel strip raced to meet us. There was nothing I could do to stop it. My knees were locked straight; I pushed my feet hard against the toe brakes. The yoke was pressed hard against my chest. I maintained this position as the airplane skidded off the end of the runway, bounced over the uneven and marshy tundra for a few terrifying seconds, and finally came to rest when the nose wheel became mired in a shallow puddle. Before I could shut off the engine, the nose sank down in the mud. The sound of both ends of the propeller hitting a rock and breaking off, was one of the most sickening sounds I have ever heard.

Well needless to say, the "nicks" on the prop were a bit too big to file out. The FBO flew up the next day with a replacement propeller and a pilot/mechanic. The prop was changed and the pilot/mechanic flew me back to Anchorage. I paid for the extra flights and the propeller out of wages due and never worked for the FBO again. His parting words to me were, "If you don't tell, neither will I." And I haven't, until now, that is.

The memento I have kept all these years in my bottom desk drawer, as you may have already guessed, is this 4-inch piece of Sundowner propeller. You can still see the brown and green tundra-stains on it. I only found one of the chunks that broke off; the other is still buried up there in Alaska. Since that "incident," I've flown nearly 15,000 accident-free flying hours in many aircraft, but I'll never forget my last flight in that particular Beechcraft. Fifteen thousand hours of official accident-free flying—30 seconds of unofficial accident flying and it was all because of arrogance and the desire to impress a young lady.

That's the story of my secret pilot error. And this is the message I want to leave with you—my swan song. Be proud of yourself, your abilities, and your accomplishments. And take pride in your unit, your Air Force, and your country. It's worked for me. (A hush has fallen over the audience as General Covington lets his message sink in.)

Ladies and gentlemen, I thank you for this fine dinner, for your kind attention, and most of all, for giving this old bird one last opportunity to spout off. One more thing before I sit down. If any of you find yourselves in western Colorado after the 10th of June, feel free to stop by the Covington Ranch for a bite of grub and something to cool your throats. Mrs. Shining Eyes Covington here (he glances at a truly classic beauty of a lady) may not be much of a judge of pilots, but she's a powerful good cook.

Until we meet again, FLY SAFE!

(The audience stands and gives the speaker a standing ovation. General Covington, a tear slowly edging its way down a time-worn facade, reaches over and plants a soft, quick kiss on Mrs. Covington's cheek, then looks up and gives one final triumphal wave.)

ABOUT THE AUTHOR

Mr. Padfield is a 1971 graduate of the USAF Academy and holds a master's degree from UCLA. His Air Force career included flying the HH-3E at Keflavik, Iceland, and Elmendorf AFB, Alaska. He's currently an aircraft and simulator instructor for Helikopter Service AS, Stavanger, Norway flying Sikorsky S-61Ns. Previously an Honorable Mention Winner—Special Category in the 1979, and 1980 writing contests, Mr. Padfield has also been published in *Air Progress*.

MAC INDIVIDUAL FLYING-HOUR MILESTONE AWARDS

10,000

Lt Col Lewis Aaronson, 728 MAS
Lt Col Normer L. Gill, Jr., 172 TAG
Maj Thomas L. Spangler, 3 MAS
SMSgt David L. Mizirl, 137 TAW
MSgt John C. Anderson, 185 TAS
MSgt John J. Panoski, 109 TAG

5,000

Col Gary L. Anderson, 374 TAW/ADO
Col Robert E. Dotson, 445 MAW/CC
Lt Col James Hendrickson, 37 TAS
Lt Col Ronald S. Michaels, 21 TAS
Lt Col Russell F. Miller, 729 MAS
Lt Col Wallace W. Whaley, 301 MAS
Maj Raymond M. Bauer, 41 RWRW
Maj Stuart W. Coan, 3 MAS
Maj Henry D. Hoffman, 728 MAS
Maj Robert H. Moore, 183 TAS
Maj Michael W. Nooman, 728 MAS
Maj James M. Roberts, 135 TAG
Maj Owen Rogers, 375 AAW
Maj Richard D. Stichler, 135 TAG
Maj Earl B. Stitt, 730 MAS
Maj Sidney M. Stuart, 701 MAS
Capt Daniel W. Dill, 730 MAS
Capt Nicholas A. Fuhs, 3 MAS
Capt John D. Dorris, 728 MAS
Capt John D. Irvin, Jr., 729 MAS
Capt Clifford J. Shahbaz, 301 MAS
Capt Jerry D. Willoughby, 301 MAS
SMSgt Robert J. Ward, 22 AF
MSgt Joseph E. Boles, 21 TAS
MSgt Peter A. Carlson, 730 MAS
MSgt Johnny Crittenden, 729 MAS
MSgt Lloyd E. Gray, 183 TAS
MSgt William E. Kratch, Jr., 403 RWRW
MSgt Dennis C. Smith, 729 MAS
MSgt Carl L. Record, 730 MAS
MSgt Burl W. Stotts, 36 TAS
MSgt Donald W. Williams, 21 TAS
TSgt Ynocencio Naranjo, Jr., 68 TAS
TSgt Joe Rodriguez, 62 TAS
TSgt Tony Sims, 36 TAS

2,500

Maj Darrell R. Knutson, Det 6, 40 ARRS
Capt Rogers . Shaw, II., Det 2, 37 ARRS
Capt James A. Sills, Det 15, 39 ARRW
TSgt Ricky D. Hindman, 38 ARRS
TSgt Charles D. Morrow, Det 22, 40 ARRS

(Ranks and units are those at time of award. See MACR 900-3 for details on how to apply for your own milestone award.)

Volant Oak 82

Route of flight of C-130 channel flight, Howard AFB, Panama, to Ilopango Airport, San Salvador, El Salvador.

by Captain Gale E. Clouse, Jr.
Associate Editor

The troop-laden Air Force Reserve C-130E arriving from Andrews AFB, D.C., was on short final for runway 18 at Howard AFB, Panama. It was the first of two flights scheduled to arrive that cloudy September afternoon as part of a Volant Oak C-130 rotation by the 459th Tactical Airlift Wing based at Andrews. Earlier in the day, two Volant Oak Herks had departed for Andrews, ending their 2-week stay in rainy Panama. For these incoming crews and maintenance troops, though, a new adventure was just beginning. In Central and South America, they'd have the chance to fly and maintain their C-130s on diverse "real world" missions. In the process, these folks would hone their flying and maintenance skills and professional abilities.

On board the first Andrews C-130 was Major General Richard Bodycombe, Air Force Reserve commander, who would inspect the Reserve's participation in this operation. Greeting General Bodycombe were two individuals who played pivotal roles in support of the Volant Oak activities; Colonel Phillip Jackey, Jr., commander of the 1300 MAS (a MAC active-duty unit), and Lieutenant Colonel Bill Byerley, C-130 liaison officer, 2400 Reserve Readiness and Mobility Squadron (RRMS) at Howard. Colonel Jackey is also the commander airlift forces (COMALF) at Howard.

The 1300 MAS receives the Volant Oak mission

Major General Richard Bodycombe, Air Force Reserve Commander, visits Volant Oak operations at Howard AFB in September 1982. General Bodycombe retired in November 1982.

tasking from U.S. SOUTHCOM, the theater command for Central and South America. The 1300 MAS then schedules the C-130 missions, obtains diplomatic clearances when necessary, and provides mission and intelligence briefings to all C-130 aircrews. In addition, all cargo and passengers are handled through 1300 MAS facilities. Colonel Byerley manages a four-person permanent unit, the 2400 RRMS, which is composed of AFRES and ANG personnel who assist the rotational C-130 units in their daily operations. This unit is also the primary liaison between the Air National Guard Bureau, the Air Force Reserve Headquarters and the host wing and base units at Howard supporting Volant Oak.

Missions

Since 1 October 1977, the Air National Guard and the Air Force Reserve have jointly participated in the Volant Oak mission. Rotational units today average 360 hours monthly in channel, SAAM, JA/ATT, search and rescue (SAR), medical evacuation, and joint operations and exercise missions. JA/ATT missions, flown in support of the U.S. Army's 193d Brigade at Fort Clayton, Panama, routinely carry over 4,000 troops and 35 tons of cargo each year. Volant Oak's contingency support and disaster relief support occurs on an as-needed basis. Between 11 June and 1 July 1979, C-130 crews from the 442 TAW, Richards-Gebaur AFB, Missouri, flew 53 sorties for 79.1 hours and evacuated 1,417 non-combatants and 26 tons of cargo from Managua, Nicaragua during the Sandanista revolution. On 12 December 1979, 433 TAW crews, Kelly AFB, Texas, flew family-sized tents and double-decker cots to Bogota, Columbia, in the wake of a severe earthquake which ravaged that country. To accomplish contingency/wartime tasks, one C-130 and crew are kept on alert at all times. Some alert aircraft launch in support of search and rescue operations. Between January and September 1982, Volant Oak crews flew seven SAR sorties and were credited with one life saved and eight assists. Howard's rescue coordination center, collocated with the theater airlift control center, acts as a focal point for the SAR interface with C-130 Volant Oak crews.

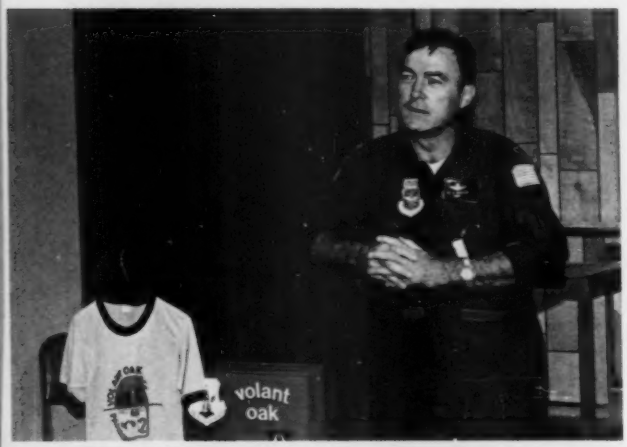
Theater In-Brief

The first stop for the newly-reporting 459 TAW crews was a theater briefing given by Colonel Byerley. This briefing was thorough and covered general theater information, flying in the local area, and Howard AFB policies and facilities. The arrival of the two planes on Saturday (normally three rotate in every Saturday) brought Volant Oak forces back up to their normal full strength of 6 aircraft, 7 aircrews, and approximately 50 maintenance troops.

El Salvador Bound

On my Volant Oak flights, I'd fly both a channel support mission and a JA/ATT flight. On Monday morning I flew with Captain Gary Martindell and First Lieutenant Richard Schena II on a cargo run to Ilopango Airport in San Salvador, El Salvador. Captain Martindell is an air reserve technician with the 756 TAS at Andrews. Lieutenant Schena, also from the 756 TAS, is a furloughed airline pilot currently flying full time with the reserves.

Taxiing out to the active runway, we noticed



Lt Col Bill Byerley, 2400 RRMS, briefs incoming 756 TAS Volant Oak aircrews and maintenance troops. Photos by author.

756 TAS personnel get Volant Oak incoming briefing on local flying area and Howard AFB policies and facilities. In second row are: Mr. Gerald Cantwell, AFRES historian, (left) and Major General Bodycombe (center).

several flocks of small birds in the engine runup area. Major George Hand, 1300 MAS current operations, had previously briefed the crew concerning these avian friends and the serious flying hazard they pose at Howard.

Our route of flight for the 2½ hour mission to El Salvador took us over Costa Rica and Nicaragua. Captain Martin Davis, our navigator from the 757 TAS at Youngstown, Ohio, had prepared a manual flight plan for the airway routing and had programmed the Omega navigation receiver for the flight.

Departing from Howard, we flew over the Thatcher Ferry bridge that crosses the Panama Canal near the base. Overhead Managua, Nicaragua, we could see signs of a previous earthquake which caused the collapse of numerous buildings. Shortly after passing Managua, we heard a Soviet Aeroflot aircraft talking to air traffic control and climbing to FL 330. For most of our route, though, air traffic was fairly light. As we flew over a large lake near the Ilaopango Airport we had the field in sight. We cancelled instrument flight rules (IFR), flew a visual final approach and landed.

Our unloading operations were brief since we only had a single pallet and a new forklift to off-load. The MAC station manager in El Salvador didn't have any passengers or much cargo for our return flight to Panama, so we had minimum ground time there.

Our flight back to Panama was routine with the exception of the final approach back into Howard. Air traffic control inadvertently gave us radar vectors toward a thunderstorm near the field. Fortunately, our C-130 crew spotted the base, cancelled IFR, and called the tower. We then made a visual approach and landing to the field, avoiding the cells building over Panama City. After landing, we parked on the Volant Oak section of the ramp and completed a mission and maintenance debriefing.

JA/ATT Sorties at Venado DZ

On Wednesday I flew a C-130 JA/ATT mission commanded by Captain Tom Loftus of the 459 TAW. Our mission was to make static line and high altitude low opening (HALO) drops over Venado drop zone (DZ) located adjacent to Howard. Prior to takeoff, Captain Loftus stressed keeping non-essential chatter to a minimum. Captain Mike Mosier, our navigator from the 757 TAS, planned an overwater routing to the DZ for both the static line and HALO drops.

After takeoff from Howard, we departed to the west over the bay area descending to about 300-500 feet for the route. In the bay we could see numerous ships anchored offshore waiting to enter the Panama Canal. First on the agenda were static line drops of 29 members of A Company of the 193d Brigade, U.S. Army. Since the Venado DZ starts just beyond the water line of the bay, we called up the 1300 MAS combat control team (CCT) and had them confirm the presence of an Army rescue boat near the shore. This was a definite safety requirement since past jumpers have managed to land in the water, short of the DZ.

Jumpmaster on U.S. Southern Command's parachute team, the "Jumping Ambassadors," sights Venado DZ.

"Jumping Ambassador" exits C-130 in HALO drop at 10,000 feet.

At about 2 minutes out on our initial run, the CCT called out calm winds at the DZ and cleared us to drop. After the 1 minute warning, the CCT released the smoke marking the DZ and we could see the briefed block letter. Captain Mosier gave the green light about 5 seconds prior to our scheduled time on target. Since Venado DZ is only about 10 seconds long at C-130 airdrop airspeeds, Captain Mosier called red light before all of our jumpers were out. In fact, we made an additional three passes to let all our jumpers, including the safety observer, make their jumps.

After return to Howard we made an engines-running onload picking up members of the U.S. Southern Command's parachute team, the "Jumping Ambassadors." These U.S. Army Special Forces jumpers were scheduled to make jumpmaster-controlled HALO drops from our C-130. For this practice jump and in their performances in the cities of Central and South America, the team used a highly-maneuverable sport parachute and smoke cannisters. After takeoff with the "Ambassadors" onboard, we climbed up to 10,000 feet. We made several "dry passes" over the DZ since the jumpmaster felt that conditions were not right for the jump. Finally, our first jumpers went out two at a time. We then flew 4 minute racetracks to the DZ to let the remainder of the team make their jumps. Staff Sergeant Steve Jones, from the 1300 MAS combat control team, was among the HALO jumpers getting their jump currency updated. On subsequent jumps, I visited Venado DZ and watched the DZ operation conducted by members of the 1300 MAS CCT. One team member landed right on the point of impact while all jumpers landed very close to the spot, *very close.*

459 Mission Commander.

Lieutenant Colonel Dave Harrington, 459 TAW mission commander for 2 weeks of the Volant Oak rotation, was proud of his unit's efforts in supporting the Central and South American C-130 operation. He noted that the individual reservists who perform this "real world" mission during the 2 weeks in Panama go back to their units with a positive feeling. Colonel Harrington reported his unit always has more volunteers than there are Volant Oak slots available. Many aircrews are veterans of previous Panama "rotes" and always look forward to coming back again.

Volant Oak—Total Force in Action

The 459 TAW crews I had flown with were true professionals and delivered the goods safely. Their planes were well maintained by their own TDY maintenance folks. Their flying and outstanding support of the Volant Oak mission in Panama are positive examples of how the Guard and Reserve are "hacking it," in safely accomplishing the airlift support of Central and South America. Volant Oak is representative of our nation's commitment to a Total Force policy, and we can be proud of the Guard and Reserve forces making that policy work. *TMF* salutes the Volant Oak forces and the 1300 MAS at Howard for a job well done, "south of the border," down Panama way. ★

A team member lands safely at Venado DZ. Photos by author.

AWTH's Corner

Burning Out?

Primary problems: Command pressure, inattention, lack of awareness, task saturation.

You have heard this one before, but here it is again.

"I work 5 days a week in a wing staff job, in addition to my flying. The majority of our trips depart between midnight and 0600. In this case, I worked regular hours on Monday, and was set up for a 0130 exercise mission departure on Wednesday. I tried to stay up late Monday night in order to sleep late Tuesday, knowing that once I awoke, I wouldn't be able to sleep again. I woke up at 0930 Tuesday! The trip started on time and consisted of a basic crew. After a 2 hour flight, we had a 2 + 15 ground time. The second leg was about 2.5 hours followed by a 3+15 ground time. The last leg was about 2 hours. In all, the whole mission went the nearly max crew duty day, ending at 1400. Attempts to sleep enroute were unsuccessful due to the short legs, the requirement for two pilots in the seats, and the usual paperwork. Maintenance problems and the ever-present noise during onloads and offloads did not help. By the time the mission terminated, I had been up almost 30 hours. I wouldn't drive a car in that condition, but MAC continues to expect us to fly multimillion dollar aircraft."

"During the last leg of this particular mission, I was really starting to get behind the plane—checklists were late, checklist items missed completely, the approach was sloppy and resulted in a long landing. Crews are definitely beginning to get the idea that *they* are the last things plugged into the mission schedule equation. In my opinion, fatigue is the biggest hazard to our operation. This subject has to be addressed. We need to look at shorter crew duty days when takeoffs are out of normal sleep cycles. MAC also needs to look at additional pre-mission crew rest to allow us to adjust, or, at least, adding a third pilot in these situations. Enroute crew rest needs to be addressed also. A 24-hour crew rest only sets the crew up for starting the next mission after they've been up for 12 to 16 hours. Help us out!"

A True AWTH!

Primary problem: Circadian rhythm.

Fatigue and crewrest problems are definitely coming in more frequently than at any other time, thanks to the AWTH Forms, MAC Form 325. Here's another example:

"This particular mission is a real 'Accident Waiting To Happen.' It seems to have been planned with complete disregard for circadian rhythm problems. After a long first day, the crew arrives at 'X' at 2000 local. By the time you get downtown or into the VOQ, it's difficult to get anything to eat. The release is normally 24 hours which means you sleep at night and then are up for 12 to 14 hours before the next alert time. Then the next night, you fly across 4 or 5 time zones to an overseas destination, land, load, and then fly on to one more location before stopping—truly an AWTH! The return back to the states and home base has the same problems."

Editor's Note: MAC flight safety is closely monitoring AWTH reports along the themes of "Burning Out" and "A True AWTH!" to determine any adverse trends. If a trend does develop, we will refer it to the appropriate Headquarters MAC directorate for action.

Honorable Mention, 1982 MAC Flying Safety Writing Contest

Splish Splash,

I Was Taking a Bath

by Major Richard A. Barazzotto
355 TAS (AFRES)
Rickenbacker ANG Base, Ohio

I'll always remember those two daylight aerial refueling receiver sorties back at Castle AFB, California. A fledgling RC-135 aircraft commander (AC), I had been previously AC-qualified in the KC-135 and, prior to these two missions, had finished some night receiver sorties. But those two particular sorties will remain with me for the rest of my life.

A typical RC-135 day training sortie included a receiver refueling, a little cross-country practice, and finally, 5-9 hours later, some approaches and landings. The average crew complement on one of these sorties would warm the heart of Cecil B. DeMille. It looked like an epic production with a cast of thousands.

Having completed the preflight briefing, our "cast" climbed aboard, and we made an uneventful takeoff. The instructor pilot (IP) was Major Jim Morrow, with yours truly in the left seat. The tanker rendezvous was smooth, although my Wright Guarde deodorant was severely strained as we made our approach and hooked up at 20,000 feet. Since this was my first day ride, I was none-too-steady, but we made a few successful hookups. Finally, the IP decided to show me how easy it was (and give me a rest), so he took over and flew the aircraft to the tanker like it was on tracks. We asked for the tanker to start the offload (a nominal 3,000 lbs), and then our troubles began.

Shortly after the transfer started, the navigator made a rather excited breakaway call. It seems we had a leak in the plumbing, and the navigator had been drenched with JP-4. Even after the breakaway, it was still running out of the insulation and splashing around on the floor (shades of "A Gathering of Eagles"). If we didn't handle this emergency correctly, the results would be on TV and we would soon be scattered all over Nebraska.

The IP's first instinct was to dump the cabin pressure to vent the fumes, but I remembered a note that used to be in the B-52 Dash One. (I'll bet you're all wondering, "When did he ever fly a B-52?" Well, between graduation and signing up with the Air Force, I had a job as a contract flight test engineer at Wright-Patterson AFB. One of my duties was to fly in a capsule that went into a B-52 bomb bay. We used the B-52 as a long range/high altitude testbed, and during those flights I would fly in the capsule to operate various

pieces of test equipment. As a crewmember, I had to know all the emergency procedures, hence the early familiarity with a Dash One.) Anyway, the note basically said that when fuel spills into the cockpit area, dumping the cabin pressure greatly increases the risk of an explosion. Since much of the equipment is insulated by air, removing the air increases the chances of an arc which can be the source of ignition.

After a quick discussion, we decided that 10,000 feet would be a good compromise on the cabin altitude. We would shut down all extraneous electrical equipment, dump fuel and land immediately. With everyone breathing 100 percent oxygen, we accomplished our improvised emergency procedures, declared an emergency, and the IP greased us back on terra firma at Offutt. We taxied to a convenient spot and gladly gave the aircraft to maintenance. After shutdown, we exited with our equipment and the erroneous feeling that we had somehow cheated death again. We found out later how wrong we were.

After we returned the 135 back to Castle, maintenance found a cracked fitting somewhere in the plumbing and put the aircraft back together in time for the next week's scheduled training flight. As luck would have it, I was scheduled again for the same sortie with the same aircraft, although with another instructor pilot. I talked to the crew chief who assured me that the refueling system had been thoroughly checked and was, this time, indeed ready to go. So exactly 1 week later, we found ourselves behind a tanker at 20,000 feet over Nebraska. Now, with 10 more minutes of training under my belt, I was doing much better at making my approaches and getting hooked up. After a few tries, the IP called for the fuel transfer only to hear, almost immediately, another excited, "Breakaway! Breakaway! Breakaway!" Well, it wasn't a simulator so I punched the disconnect button and pulled the power back. With the tanker out of the way, I glanced over my shoulder and saw a deluge of JP-4 coming from the roof of the cockpit, down on the navigator and all his equipment. What a lousy rerun! I started to talk fast trying to convince the IP not to dump the cabin pressure. He agreed and we decided that we had a chance to make it down safely.

The rest of the story was almost a repeat—shut down electronic equipment, declare an emergency, dump gas, and head for the deck. The only difference was that this time we just cleared off the runway, stopped on the nearest taxiway, chocked the plane with two parachutes under the nose wheel, and shut down our engines. We then very slowly, exited the plane, making sure that each of us stayed grounded to the airframe, as we didn't need any static sparks. Unlike the first time, we only unloaded the people.

With the C-141B conversion complete, more receiver refueling sorties flown by C-5s, and increased use of the aerial bulk fuel delivery system (bladder birds), understanding the ramifications of a fuel spill can save your life.

In trying to develop a procedure which could be incorporated into the receiver refueling Dash Ones, I spent the next year gathering information by talking and corresponding with people at Wright-Patterson, Oklahoma City Air Logistic Center (C-135 maintenance depot), and various divisions of Boeing. The net result of all my efforts was to determine that there is no universal agreement on what to do when fuel actually gets splashed around the cockpit.

One thought was to dump the cabin pressure, the theory being that the ensuing explosion would have the smallest overpressure should it occur at high altitude. The bad news about this is that it seems to overlook the fact that in airlift aircraft, the electrical equipment is air-insulated as well as being air

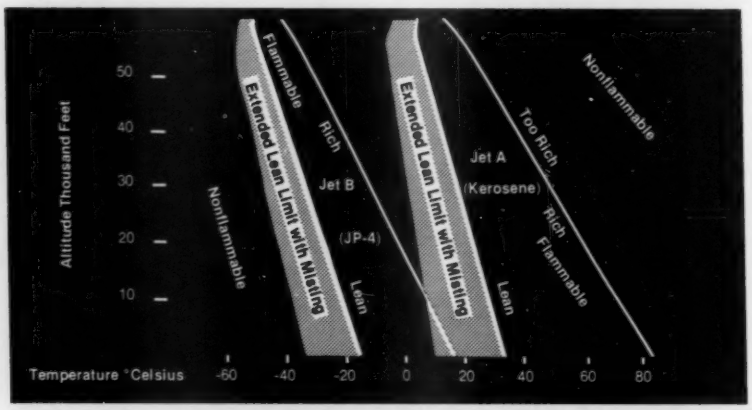


Figure 1: Altitude and temperature ranges where JP-4 and Jet A fuels are hazardous. Original illustrations by G. Banning from studies and reports of Irving Pinkel, consultant for NASA and CRC, and data developed by G. Banning and K. Burroughs, ALPA. Reprinted courtesy *Air Line Pilot.*

cooled. In the K/R/E/C-135, this means that the cabin outflow is through the radio equipment racks. So when the cabin altitude is increased, the density of the air which is insulating the high voltage power supplies is reduced, increasing the probability of an arc. Fuel-vapor-laden air plus arc equals explosion. Not too desirable! The pressurization systems are flow limited, so dumping the cabin pressure will NOT flush the cabin quicker by changing the air more often.

Figure 1 provides a graphic explanation of altitude and temperature ranges where the JP-4 and Jet A fuels are hazardous. Also note that when the fuel is agitated, it increases the range within which it will burn. Fuel spilled during refueling has to be considered highly agitated so the outer limits apply. Note that there is a significant difference in the temperature at which JP-4 and Jet A are problems. For JP-4, turning the cabin temp full hot is the correct approach. Jet A requires the opposite action, so you world-wide movers need to keep in mind what you are burning, or if it is fresh from the tanker, what you are swimming in.

Aerial refueling is a very important capability not only for fighters, bombers, and long range reconnaissance aircraft, but also for airlifters. However, while we may do it on a day-to-day basis, it is not without hazards. Understanding what an in-cockpit fuel spill is all about is best done before the fact. I wasn't smart enough to understand all the reasons for doing what I did on those two days over Nebraska. Having carefully researched the problem, though, here is a tested procedure that will put the odds as much in your favor as possible. For an in-cockpit fuel spill my suggestions are to:

(1) Go to 100 percent oxygen;
(2) Increase the cabin altitude to no more than 10,000 feet;
(3) Increase cabin temperature to maximum for JP-4, decrease cabin temperature to full cold for Jet A;
(4) Turn off extraneous electrical equipment;
(5) Prepare to land as soon as possible;
(6) Have crewmembers change fuel soaked clothing immediately. The smallest flash fire will follow the fuel through the usually protective nomex flight suit and lead to severe burns. Fuel can also cause skin problems.
(7) When you are back on the ground, exit slowly, remembering to keep the crew well grounded to minimize the chance of a potential spark. Don't unload your baggage until the fire department has thoroughly vented the aircraft and given the "all clear." It's handy at this point to remember that the explosive power of one gallon of fuel is equal to about 14 sticks of dynamite.

For those of you who may have wondered what caused the second nearly-repeat incident, a screwdriver was stuck in a one-way check valve which is supposed to let air, but not fuel, out of the manifold. I'll bet the person that designed it, without a positive vent to someplace other than the cockpit, doesn't wear a green bag to work.

Remember Murphy was an optimist, but you can keep the odds in your favor by being smarter.

Editor's Note: A similar incident happened to a MAC C-5 crew flying on air refueling training mission out of Altus AFB, Oklahoma, in March 1978. They also reacted properly and recovered back to Altus without incident.

ABOUT THE AUTHOR

Major "Zot" Barazzoto earned his pilot wings at Randolph AFB in 1969. He has flown OV-10s in Southeast Asia, RC-135s at Offutt AFB, Nebraska, and C-123s with the Air Force Reserve at Rickenbacker ANGB. Before entering the Air Force he served as a flight test engineer at Wright-Patterson AFB. Captain Barazzoto is a Senior Scientist with Autometric, Inc. and is involved with the development of reconnaissance, intelligence, and C^3 systems.

The MAC Flyer

1983 Flight Safety Calendar

JAN

S	M	T	W	T	F	S
						1
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9	10	11	12	13	14	15
16	17	18	19	20	21	22
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30	31					

1 New Year's Day

Let's all resolve to be/Accident Free in 83.
MAC Safety Awards Board meets.
USAF safety awards nominations and unit NSC awards nominations due 25 Jan.
SICOFAA award nominations due 10 Jan.
Even though a new year is here, winter hazards abound!

FEB

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21 Washington's Birthday

Unit flying hours due to HQ MAC/IGFE.
Flying safely—Do it for the ones you love.

MAR

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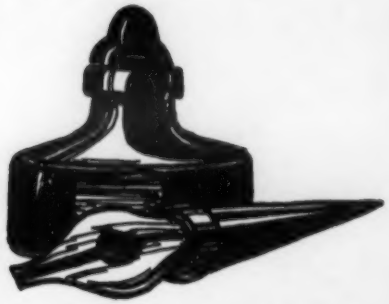

MAC Flying Safety Writing Contest ends.

APR

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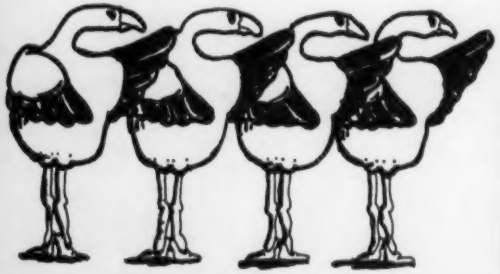

Birds begin spring migration.

MAY

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30 Memorial Day

Give thunderstorms a wide berth.

JUN

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Remember where lightning is most often encountered.
Hot weather takes its toll in aircraft performance.

JUL

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4 Independence Day

Declare your independence from complacency.
Writing contest winners announced in *TMF*.

AUG

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Check for individual flying-hour milestone achievers each month.
Units order new safety awards supplies.

SEP

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5 Labor Day

Transition from summer to fall brings a mixed bag of weather hazards.

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10 Columbus Day

Fall migration of birds into full swing.
Birds and fall—hazards to all.

NOV

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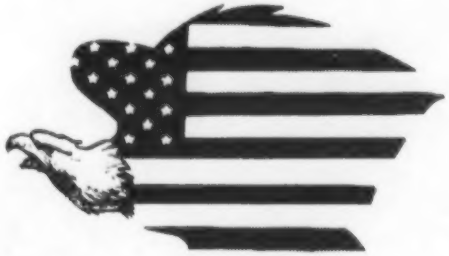
11 Veterans Day
24 Thanksgiving



MAC Flying Safety Writing Contest starts.

DEC

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25	26	27	28	29	30	31

25 Christmas

MAC safety awards nominations due 1 December.
Happy and safe holidays!

Mishap with a Moral

Flight into severe icing had this Britannia . . . . *ICED UP*

It was a dreary, snowy day when the English Bristol Britannia 253F crew arrived at Boston's Logan International Airport to start the last leg of their flight to England. The crew navigator checked in with the weather forecaster, left, and returned a short time later with the pilots. The crew requested forecasts for several alternates in the British Isles. The forecaster, who later said the crew appeared to be in a hurry, briefed the crew but had to call them back to the counter twice to finish their briefing and to obtain their flight number for his records. Only after the crew had executed their hasty departure did the forecaster realize he had failed to inform them about SIGMET India 2, which forecast occasional severe icing in the New England area.

While the pilots and navigator were flight planning, the flight engineer and ground engineer had gone on ahead to the turboprop freighter to start their preflight. With nearly a foot of snow on the plane, the flight engineer instructed the ground crew to sweep and deice the Britannia. While the deicing was in progress, a light, wet snow fell intermittently, yet no significant buildup appeared on the plane. After deicing, the flight engineer made one more walk around and satisfied himself that the controls were free of snow and ice.

Approximately 10 to 20 minutes after the deicing was completed, the flight crew and the two passengers entered the plane. Meanwhile, the deicing crew gave the aircraft one final "fast shot" of deicing fluid. Shortly after this, the engines were started, yet the plane remained in parking for another 20 to 25 minutes before being cleared to taxi.

After a long, slow taxi to the active runway, the Britannia reached the departure end of runway 33L. During the taxi out, flight 103's captain used the reverse thrust of the turboprops

numerous times because of the icy conditions of the taxiway. Witnesses saw snow swirl around the wings and engines every time reverse thrust was used. At 1409 local, flight 103 called, "rolling," as the first officer started the takeoff.

Lifting off between 6,700 and 7,600 feet down the runway, the nearly maxed-out cargo plane slipped into the air and was hit almost immediately by severe turbulence. Maximum continuous power was set shortly after takeoff, and the crew settled down to accomplish the after-takeoff checklist. With gear and flaps up, the first officer stated, "Two DME, going left," which corresponded with the departure instructions. At this point, however, things began to go wrong.

Approximately 2 minutes after takeoff, departure control issued the first of two low-altitude alerts.

". . .One-oh-three, low altitude alert. Check your altitude. Climb and maintain niner thousand." The plane was just passing 1,200 feet, and the cockpit conversation illustrated just what it was like in the air.

"Bloody rough, isn't it?" remarked the captain.

"Got the deicing on?" came an unidentified voice.

"Affirmative!" replied the engineer. In severe turbulence, the Britannia moved rapidly about all three axes. One minute after the first low-altitude alert was issued, a second warning came from the departure controller.

". . .One-oh-three, low-altitude alert! Check your altitude immediately, shows 1,400 feet! The minimum safe altitude in that area is 1,700 feet."

"Roger," the captain answered back. "We're getting a lot of chop here." He then instructed the first officer to "Go to V2 plus 3 then, Jack." Complying with that order, the right-seater raised the nose of the pitching aircraft to achieve a better climb gradient at 136 knots—V2 plus 3.

About a minute and a half later, the following conversation took place as recorded on the cockpit voice recorder (CVR).

First Officer: "Okay, do you want to jettison, Bill?"

Captain: "Yeah, start jettisoning fuel."

First Officer. "You take control, now."

Captain: "Okay, my stick." (Next words could be "low and sinking.")

Navigator: "You're very low—I can see the ground."

Flight Engineer: "Yeah, we're dumping fuel."

Captain: "Get round here, you bugger. Controls are frozen!" (Next words could be "try it.")

First Officer: "Get some power up!"

Flight Engineer: "We have full power now!"

Captain: "In a stall! Look out! Hold on!"

The last sounds on the CVR are the sounds of the impact which occurred at 1416:08. The aircraft crashed into a wooded area adjacent to an industrial area and just short of a residential section. Following initial contact with trees, the aircraft came to rest some 1,500 feet later, immediately bursting into flames. All crewmembers and passengers of the ill-fated turboprop, with the exception of the flight engineer, were killed.

Following initial contact with trees, the aircraft came to rest some 1,500 feet later.

Analysis

In investigating this crash, the NTSB considered various aspects of power loss as possible causes of this accident. Mechanical failure was ruled out because tests proved the engines were delivering full power at impact. A subtle decrease in power resulting from engine inlet or entry guide vane icing was also discounted. Some minor power loss occurred during the short flight because engine bleeds were used. In the NTSB's opinion, this was not, however, enough to cause the crash.

Airframe or flight control malfunctions, and weight and balance miscalculations were also ruled out after a thorough investigation. The NTSB focused the remainder of their investigation on meteorological

conditions and their effects on the aircraft, and the crewmembers' actions in coping with those conditions.

First of all, the weather was absolutely horrid! The ceiling had never gone above 200 feet and the visibility ranged from ½ to 2 miles in snow and fog for most of the day. There was also evidence of "pretty good turbulence" at altitude as recorded on the flight data recorders of several aircraft that landed both before and after the flight 103 crash. The NTSB determined a wind shear in the range of 29-33 knots was probably encountered by the ill-fated turboprop once it climbed above 1,000 feet. Coupled with the presence of moderate to severe icing and the limited anti-icing precautions taken by the crew, it is highly likely that flight 103 developed a fatal case of icing.

According to NTSB calculations, the Britannia should have accelerated to takeoff speed in about 4,000 feet, not the nearly 7,000 feet it actually took. Further investigation into the lengthened takeoff run revealed that as little as ¼-inch of slush on the runway could have accounted for the poor performance of flight 103. But that was just one of the factors. The late liftoff might also be partially attributed to the degraded lift capability of the aircraft. Consider the fact that as much as 60 minutes may have elapsed from the time the aircraft received its last deicing until it actually took off. Additionally, snow was blown about the wings and engines during ground taxi. Given the short time deicing fluid is considered effective, snow, ice and slush could have easily adhered to the wings and tail of the plane.

The NTSB tried to understand the flight crew's lack of concern over the aircraft's poor performance. The crew merely "assumed" that the necessary power was being generated by the engines. Distraction may have been present as the crew, possibly preoccupied with their after-takeoff duties, did not appear bothered by the abnormally low climb performance. The crew made no overt comment regarding the degraded climb performance and tock no action to correct the situation.

The factors analyzed thus far would not, by themselves, have caused the plane to crash. They did contribute to the substandard performance of flight 103, but the events immediately following the second low-altitude alert were probably the key to the crash.

By the time of the second low-altitude alert, the climb performance of the Britannia had obviously degraded to a point where the captain told his first officer to go to "V2 plus 3." Two reasons probably prompted this remark. After the second warning from departure control concerning his altitude, the captain was concerned that he was coming increasingly closer to high terrain. He may have also suspected a severe downdraft and instructed the copilot who was flying the plane to fly at an airspeed giving them a better climb gradient. Under most conditions, "V2 plus 3"—136 knots—would have done the job. With the unknown and undetected airframe and wing icing that undoubtedly existed, however, the increased angle of attack could not have provided the rate of climb the crew expected. In fact, 136 knots was probably below the speed for the maximum climb gradient and probably further contributed to the formation of ice on the wings, tail, and even under the fuselage.

With the aircraft operating at a high angle of attack and the wing's lifting characteristics drastically altered by the formation and added weight of the ice, the stall speed of the Britannia was now higher than the 118 knots charted for a "clean" plane. In fact, reducing the speed to "V2 plus 3" probably placed the crew at or very near the higher than normal stall speed. This conclusion is also substantiated since the stickshaker never activated.

Probable Cause

The NTSB believes the probable cause of this tragedy was degraded aerodynamic performance, beyond the flight capabilities of the aircraft, caused by the accumulation of ice and snow on the aircraft before takeoff. This condition was further aggravated by flying the Britannia into severe icing conditions at a sustained high angle of attack. Contributing to the causes of this crash were the aircraft's encounters with turbulence, wind shear and downdrafts during the climb. The failure of the flightcrew to obtain an adequate weather briefing and the failure of the National Weather Service to advise the flightcrew of SIGMET India 2 were also contributing factors.

With at least two more months of winter flying left in the Northern Hemisphere, we urge all aircrews to take to heart the lessons of this mishap.

—Adapted from NTSB-AAR-81-3

Left to right: Capt Henry Sahut, IP; TSgt Ray Bradshaw, FE; Maj Donald Conklin, IN; Sgt William Walkowiak, LM; 2Lt Blake Shinnick, CP; A1C Gary Clark, Crew Chief; SSgt Gregory Sloan, LM.

Captain Sahut and crew, 61 TAS, Little Rock AFB, were flying on airdrop mission out of Pope AFB carrying troops of the 82d Airborne Division. After takeoff and approximately 50 feet off the ground at 120 knots, the C-130 crew heard a loud "bang" and saw a bright, orange fireball. The noise and the brilliant flash were followed by an immediate and violent roll and yaw to the left—the number 1 engine had just failed. Captain Henry Sahut used full right rudder, right aileron, and a reduction of power on the number 4 engine to keep the aircraft under control.

Faced with a takeoff gross weight of 130,500 pounds, the loss of the number 1 engine placed the aircraft dangerously close to one-engine-inoperative minimum control speed. It was already below the two-engine-inoperative minimum control speed. After clearing the trees at the end of the runway, Captain Sahut carefully flew the C-130 into a right-hand closed pattern, declared an emergency with tower and directed the crew to accomplish the appropriate checklists. During the final turn, the crew noticed the grass adjacent to the runway was on fire.

Captain Sahut made an uneventful three-engine landing and, after stopping, gave the order to evacuate the aircraft. The crew chief, A1C Gary Clark, from the 314th Organizational Maintenance Squadron, departed the plane, quickly chocked the wheels, and assisted the loadmasters in safely deplaning 42 paratroopers in full combat gear. The loadmasters, Staff Sergeant Gregory Sloan and Sergeant William Walkowiak, physically assisted several of the jumpers off the aircraft who were hesitant to leave once they saw the flames from the grass fire. Additionally, one jumper had to be carried from the aircraft as he "froze" when sighting the flames.

In skillfully reacting to this serious inflight emergency and in guaranteeing the safety of the paratroopers, Captain Sahut and crew prevented both the possible destruction of their C-130 and the loss of passengers or crew. *TMF* salutes this crew's "excellence in airmanship."

GCA Accidents— A Look Back

"You are 10 seconds from glide path . . . NOW!" the GCA controller's voice was loud and clear and the pilot of the jet, leaning slightly forward, lowered the gear.

"Intercepting glide path now. Start rate of descent, suggest 550 feet per minute."

The pilot moved the stick forward, reducing power slightly, and carefully set up the recommended rate of descent. He wanted to peg his approach as early as possible. Now was the time to make adjustments—not as he neared minimums.

"You are going slightly low on the glide path, 10 feet, 15 feet," came the controller's voice. "Bring your aircraft up slightly."

The nose of the jet raised slowly in response to the pilot's corrections.

As the run progressed, the jet steadily descended with minor corrections necessary, to hold to the glide path. As descent continued the pilot swept his eyes across the altimeter frequently. Minimums were 200 feet and ½-mile. With altimeter tolerance limits of 75 feet, there isn't room for error.

"You are passing through GCA minimums," was the key expression.

The pilot, in anticipation and with close monitoring of his altimeter, had brought the descent needle up to zero and the altimeter read exactly 200 feet above ground level. Shoving the throttle forward and pulling up the gear, he started a climbing turn to the right. As he did so, he glanced from habit in the direction of turn, squinting into the sun. A shadow materialized into the underbelly of a B-25 and he kicked rudder and shoved the stick forward to skid underneath.

This pilot had carefully avoided the number one cause of GCA accidents, descending below minimums, but in his concentration had overlooked another accident maker—failure to maintain VFR on practice runs.

A study made by the Office of the Inspector General, Norton, on the subject, "GCA as a Factor in Aircraft Accidents During 1956," breaks down 51 major and 2 minor accidents in which GCA was involved at some time just prior to the accident. The factors and conditions affecting the 53 accidents are as follows:

a. Descent below established GCA minimums during IFR conditions: 29 major accidents.

b. Technical limitations of GCA equipment: 14 major accidents.

c. Inadequate control procedures and/or GCA personnel error: 10 major accidents.

d. Gear-up landings following GCA approaches: 8 major accidents and 2 minor accidents.

e. Failure of aircrew to properly monitor the position of the aircraft during VFR conditions: 5 major accidents.

f. Failure of pilots to follow GCA instructions in IFR conditions: 6 major accidents.

Analysis

The margin of safety in an IFR low approach becomes extremely critical when descent is continued below the minimums established. For example: on a 2½° glide slope there is approximately 200 feet terrain clearance at ¾-mile from touchdown, 133 feet at ½-mile and 67 feet at ¼-mile.

GCA Problems: Technical/Operator

The most prevalent technical difficulties experienced with GCA equipment have been inability to establish initial radar contact and inability to maintain radar contact because of precipitation clutter on the scopes.

The majority of inadequate control procedures pertained to ASR approaches and circling approaches to a runway other than the primary instrument runway. The GCA personnel errors involved improper control procedures, misinterpretation of target information by the controller and issuance of inadequate instructions.

Pilot Technique

The accident reports of all 10 gear-up mishaps listed pilot error as the primary cause. In all cases normal gear down instructions and checks were issued by GCA. The pilot, however, either failed to lower the gear, or failed to determine that the gear was down and locked.

Failure of the aircrew to properly monitor the aircraft's position during GCA approaches in VFR conditions indicates that some pilots may not be aware that a GCA controller issuing them instructions in no way alleviates their obligation to maintain VFR flight conditions.

Failure of pilots to follow GCA instructions during VFR conditions indicates the need for reemphasis of the dual responsibility in a safe GCA approach. This responsibility requires: (a) the interpretation of the information received by the controller on the radar scope and the relaying of this information to the pilot, and (b) the acceptance and compliance by the pilot with the advice received.

Conclusions

The accident statistics pointed out above provide factual argument for continued stress on MATS approach requirements.

Complete briefing of the crew (reference MATS Manual 55-1, Paragraph 51.16.4) by the pilot who will make the approach.

Utilization of all aids, such as radar, ADF, GCA, ILS, and back-up channels.

When on final, recheck gear down and locked.

Never attempt to fly VFR in borderline conditions.

Editor's Note: This article was printed in *The MATS Flyer* in January 1958—25 years ago. We have learned a great deal in these 25 years and don't have the difficulties and problems related by the original author—or do we?

Granted, the old "GCA" approach has now become a "PAR," but unlike the terminology, the techniques for flying an accurate precision radar approach have not really changed in a quarter of a century. We still strive to be stabilized prior to intercepting the glide slope, and attempt to make small, positive corrections to stay on course and glide path throughout the approach.

We have, however, improved our safety record for mishaps involving PAR approaches. Improved RAPCON equipment, better maintenance, and quality training of controllers have combined to nearly eliminate these areas as cause factors in mishaps involving PARs. But what of the other factors listed by the author?

Recent studies still show that mishaps continue to occur when pilots flying precision approaches (PAR or ILS) descend below decision height without sufficient visual references to safely complete a landing. Aircraft and lives are still lost when crews fail to monitor their aircraft's position or performance and end up impacting the ground. Additionally, the failure to follow the instructions of controlling agencies, for example, PAR controllers, continues to cause mishaps. Crews still become distracted while being vectored to and flying PAR approaches, causing checklist completion to be overlooked or even forgotten, occasionally resulting in yet another wheels-up landing.

The author concludes his article by urging crews to stress MATS approach requirements. The updated 1983 MAC versions of these procedures are listed below and have changed little in 25 years—a tribute to their wisdom and value.

- The pilot flying the approach must complete an approach briefing (published in appropriate aircraft directives).
- Use backup navigational aids such as ADF, PAR, ASR, ILS, Tacan, and VOR.
- Adhere to published MAC-approved approach weather minimums.
- Complete checklists, to include verifying gear down to final controller.
- File and fly IFR clearance whenever possible (IAW with USAF and MAJCOM directives).
- Never attempt to fly under VFR rules in marginal weather conditions.

Times, aircraft, and procedures change, but this article written 25 years ago is still as valid as the day it was first put into print. What will be written about this subject in the year 2008? ★

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C.R. TERROR

The Moody Major Mishandles Multiple Malfunctions.

"Midnight Airlift Command," the Magnificent Major mumbled to himself easing his bountiful bod into the Galaxy's left seat. "Now that it's good and dark and I'm good and tired, it must be time to fly. Why is it Sam, the weather's always so bad when it's my leg?" C.R. Terror continued to mutter as the crew prepared for the trying flight ahead.

"Sammy, I've got to hand it to you," C. R. panted, having finally stretched the overtaxed seat belt around his abundant midriff. "You handled all those emergencies on that last leg like a true professional. Of course, it didn't hurt that you had one of Mother MAC's most experienced copilots—yours truly—reading the checklists and keeping things in line."

"Yep. You just can't underestimate the value of a good copilot," Sam readily agreed. He continued resetting the cockpit switches back to their proper positions—thus removing the last evidence of C.R.'s 2-hour stint in the copilot's seat. With this task completed, Sam pointedly adjusted the light in the scroll checklist in a futile attempt to get the Moody Major to call for the first checklist.

"Major Terror, we're wasting valuable time. Quit stalling so we can get this checkride completed."

The Flatulent Flyboy snapped upright in his seat as Captain MacZamminer's sarcastic remark finally registered. Knowing the flight examiner's penchant for on-time departures, C.R. responded by calling "before-starting-engines checklist."

"Next time try transmitting on interphone," the weary flight examiner interrupted. "Now that every aircraft monitoring Ramstein ground control knows we are going to run checklist, they'll *really* be on the lookout." Noting the muffled guffaws from the flight engineer flight examiner, Chief Master Sergeant U.R. Que, III, the captain continued. "Sorry, Major. Didn't mean to rattle you. Please continue with the checklist so we can press on back to Dover."

Shrugging off the subtle "hit" from the jumpseat, C.R. and crew were soon ready to start the four turbofans.

"Starting number one," C.R. snapped-on interphone this time. "Sammy, watch the time." As the N-2 slowly crept upward, the Ace of Airlift deftly switched on the continuous ignition.

Noting the wrong switch had been moved, the competent copilot quickly called out "stop start." The laughter from the rear of the cockpit resumed—more audibly this time.

On the second start, a red-faced C.R. moved the number 1 engine fuel and start ignition switch to the "run" position, and the engine started normally. Noting no caustic remark from the jump seat, C.R. assumed, incorrectly, that his "faux pas" had gone unnoticed. Reassured, he soon had the largest Lockheed aligned for a runway 27 departure.

The Balding Buffoon stomped on the aircraft's overtaxed binders and smartly exclaimed "TRT standing takeoff, advancing throttles—now."

"Time!" The booming voice of Max Torque reverberated through the cockpit. But the groaning Galaxy did not move.

"Release the parking brake, Boss!" Sam shouted, realizing why the thundering airlifter was not roaring down the runway.

"Crimenently!" the Marginal Major moaned as he lightly tapped the pedals and released the brakes. The aircraft began accelerating with an audible thump. Hanging on to the yoke with a two-handed, white-knuckled grip, C.R. Terror was on the roll.

The Paunchy Pilot fought to keep the rocketing gray and white behemoth between the rows of runway lights. Despite the application of full rudder in both directions, it seemed certain they would end up in the weeds. Just as the C-5 was aimed directly at the MAC ramp,

it reached rotate airspeed and was yanked off the asphalt and into the air by the Hyper-ventilating Honcho.

"Gear up," C.R. gasped through clenched teeth, as he rolled the nearly grass-stained Galaxy into a violent bank to return to the departure course. "Have you ever seen crosswinds like that, Sammy?"

Before the Winded Warrior could continue, though, MacZamminer shouted excitedly from the jump seat.

"Birds! Look out!"

His warning was followed by a loud bang, which resembled the sound of a heavy pubs bag hitting the floor.

As both pilots jerked upright, their gaze was riveted on the angry red light of the number 1 engine fire handle. Before they could react, however, the number 2 engine fire handle also joined the act, filling the cockpit with an ominous crimson light.

C.R. quickly glanced over his shoulder, hoping the two fire lights were false indications. But the red glow from the vicinity of the left wing caused his heart to skip a beat. Desperately he tried to remember which checklist to call for.

"Ready to run the inflight engine shutdown checklist when you are, Boss," the second-in-command tactfully suggested.

"Uh, inflight-engine-shut-down checklist," C.R. stammered as he reluctantly pulled both numbers 1 and 2 fire handles. "Fire handles pulled, agent discharged! ARGHH!"

The true gravity of the situation hit C.R. like a runaway water buffalo as the half-powered heavy attempted a neat pirouette into the failed engines.

"Sammy!" C.R. screamed at the top of his over-taxed lungs. "Help me with the rudder. I can't keep this beast from turning. Hurry!"

"Right, Boss," Sam calmly responded, noting the quivering in C.R.'s right leg. The talented copilot deftly fed in more right rudder, even as the overtaxed Major's right leg doubled-up in an excruciatingly painful cramp.

To C.R.'s credit, though, he kept fighting to control the aircraft. Unfortunately, as his strong-legged assistant centered the ball, C.R. aggravated the control problems by applying full aileron—in both directions.

"Center the yoke, Pilot," MacZamminer finally yelled, feeling the initial tremors of airsickness upon him. "Get this thing under control and get the checklist completed." The uncontrollable gyrations of the C-5 finally subsided and some semblance of order returned to the cockpit. The situation, however, had not improved.

"We're below the minimum safe altitude. Climb!" Blinky's excited voice caused another surge of adrenaline to hit C.R.'s system.

"Want me to dump some gas, Boss?" Max yelled, having also lost his usual unflappable demeanor as the max-gross Galaxy staggered through the darkness. "We still weigh over 705,000 pounds and our 2-engine ceiling is below ground level."

The shouts of his nav and engineer spurred C.R. to issue the long overdue orders. "Engineer, dump gas to 50,000 pounds. Copilot, center the ailerons and give me max power. Nav, keep us clear of the terrain." Before the Sweat-soaked Skipper could release his interphone button, though, his crew was efficiently carrying out his orders. Noting a gradual climb beginning to show on the vertical velocity indicator, the Addled Aviator finally considered the fact he might survive the flight.

Now coordinated for the first time, the crew fought for altitude and airspeed as the still-burning airlifter lumbered along just above the terrain. The aircraft was finally leveled at 5,000 feet and 200 knots and the rapidly aging crew breathed a silent sigh of relief.

"Pilot, scanner." The voice of Chief Que sounded worried. "We've still got fires in both numbers 1 and 2 engines and they look like they're climbing up both pylons. We better get this hog on the ground, and fast!"

"Why me? Why me!" C.R. realized time was rapidly slipping away. He knew he had to get the aircraft back on the ground—immediately. Any delay would probably result in a fuel tank explosion and the loss of the wing. He didn't even want to consider the aftermath.

"Get us vectors to the ILS final for 27, Sammy," he barked. "Max, I need a two-engine VMCa. Standby for the approach briefing." At long, long last, the

Maladroit Major had it all in one sock. The crew raced to complete their tasks, and were soon worriedly waiting for the approach briefing.

For once, C.R.'s briefing was clear, concise, and most importantly—quick. Briefing over, the crew quietly completed the emergency checklists, preparing the flaming airlifter for the emergency approach and landing. As the aircraft rolled out on final, C.R. directed the emergency gear lowering checklists, because of the loss of the number 1 hydraulic system. But luck was finally with the ill-fated crew and all 28 wheels were soon in a welcome green-wheels condition. C.R. rechecked the configuration, eased back on the power and started down the glide slope, hoping the aircraft would hold together until it was safely on the runway.

Unfortunately, C.R. had greatly underestimated the power required from the two TF-39s still functioning, and the airspeed rapidly started to decay.

"Watch the airspeed, Boss!" Sammy cried as the critically wounded aircraft began to wallow and roll from side to side.

"Max power!" the Terrified Titan screamed as his right leg again knotted in a paralyzing cramp. As maximum power roared from the good engines, the aircraft began a rapid yaw to the left. C.R., speechless because of the pain in his cramped leg, attempted to control the gyrating Galaxy with ailerons. The aileron input only aggravated the problem, though, and the doomed aircraft snapped into nearly 90 degrees of left bank.

In a desperate attempt to regain control, the Petrified Pilot stomped full right rudder, applied full right aileron, and pulled the numbers 3 and 4 engines to idle. Freed from the asymmetrical thrust, the aircraft began an uncontrollable roll to the right.

"Roll out! Roll out!" screamed MacZamminer as he made a frantic dive for the throttles. But he was too late and the plunging C-5 continued to roll towards certain destruction.

The crew felt the first violent impact before everything went black in the cockpit. Two more impacts, each more severe than the first, followed as panels and instruments showered the hapless crew. Then all was quiet, except for the hissing sound of ruptured hydraulic lines. The crew's terrified shouts and oaths revealed they were probably unhurt, although trapped in the shattered cockpit. As acrid black smoke billowed about them, they heard the sound of approaching sirens.

The crew coughed and wheezed in the choking smoke as the first blow of the crash ax broke through the cockpit door and a silver suited rescuer peered in. "Is anyone hurt?" he asked as his searchlight illuminated the crewmembers' shocked faces. Assured they were all reasonably well, he continued his blows to the door, and soon crawled into what was left of the cockpit. Clearing away the debris blocking the exit, he motioned the stunned crew to follow him to safety. Urged on by the rescuers and the thickening smoke, the crew pulled themselves over the shattered instrument panels and into the light outside.

The scene outside was unlike anything any of them had ever experienced before. Surrounding them were twisted piles of metal and wiring, with hydraulic fluid running everywhere. They were, indeed, lucky to be alive.

"This way," the fireman said softly, as he led them down the ladder and away from the smoking wreckage. "What happened to you guys anyway?"

The still-coughing crew was unable to answer, however, and continued to walk away from the wreckage as other firemen applied foam to the still-smoldering electrical fires. MacZamminer was the first to recover enough to speak.

"Major Terror!" he bellowed, veins protruding from his beet-red forehead. "That was the most unbelievable, incompetent, unskilled piece of flying I have ever experienced—much less even read about. Do you realize you are the only person alive who has ever crashed and totally destroyed a *C-5 simulator*?" He was unable to continue his tirade, however, and began to tremble and laugh hysterically. Chief Que took MacZamminer gently by the arm and led him through the door and into the clear, moonlit sky outside the smoke-filled simulator building.

As C.R. and his stunned crew followed slowly behind, the Weakened Warrior turned and looked at the destruction. "Most realistic simulator ride I've ever seen," he huffed. "But they really need to work on those aileron servos—made it impossible for even a talented pilot like me to maintain control. Guess I'll just have to call the simulator maintenance folks tomorrow and tell them how to adjust their box so it flies right."

Slapping his incredulous crew on the backs, he continued. "Did I ever tell you about the little incident I had whilst flying the old weinie wagon a few years ago? Why . . ." ✭

Quick Stoppers

Notable Quote

To err is human, but it takes a better excuse the second time.

—Pan American *Crosscheck*

Herky Hot Foot

A MAC C-130 recently suffered extensive tire and brake damage which occurred during a local tactical training mission. The mishap aircraft began its day with two landings at a nearby LZ. After the first landing, completed with minimum braking, the aircraft remained in the closed pattern with the gear extended. The crew next completed a shortfield landing using full anti-skid braking to slow the aircraft to taxi speed. Said Herk was then taxied back and then departed for the home field with the gear retracted. After completing a stop-and-go landing with minimum braking and a 7,000 foot ground roll, the crew entered the closed pattern for a full-stop landing. The crew reported a normal touchdown but the landing deteriorated from that point.

As the aircraft slowed, there was a significant drift to the right side of the runway. The pilot applied brakes and noticed an immediate skid to the right. He released the brakes and used differential reverse thrust for directional control and to slow the aircraft. The crew then reapplied brakes and brought the aircraft to a stop. Post-flight inspection revealed the fuse plugs on both right main tires and the left aft main tire had activated, allowing deflation of the respective tires. Additionally, the right aft main tire had started to disintegrate and all four brake assemblies had to be replaced. Improper cooling of the brakes caused by retraction of the gear during the pattern work was the suspected problem in this mishap.

Towed Jumper

It doesn't happen that often, but it's certainly unnerving when it does. Consider the young HH-3 crew at 1,500 feet AGL for a personnel drop. Everything is briefed and the jumpers go through their last prejump checks. Following the final checks, one jumper sits down, stands up, hooks up and shuffles to the door. As he exits the Jolly Green, the parachute static line becomes entangled in his right hip ejector clip. The HH-3 pilot flies an approach to the DZ with the jumper in tow. Over the DZ, the towed jumper is cut loose and lands safely.

The culprits of this "towing" scene were the hip ejector straps on the jumper's harness. You see, they were made of a thinner nylon material than other portions of the harness. That's all right and in compliance with all the tech orders, but the kicker is that the thinner straps loosen with very little effort. The thicker straps hold securely and don't come loose as easily. So, when the thin nylon straps loosen, such as when the jumper sat down after the safety checks, the ejector snap hangs down and is exposed. In this dangling position, the hook can become entangled in the static line and the jumper will be towed by his harness.

ODD ODOR

Passing through 6,000 feet, the scanner of the C-141 was making his appointed rounds when he thought he smelled something like diesel fuel. Diesel fuel? Lo and behold, pooled there on the cargo floor, underneath a generator, was about 1½ gallons of the high-grade kerosene. Our stalwart Starlizard crew donned masks, ran the appropriate checklists and did an altogether bang-up job in getting the vapor-filled Lockheed on the deck. The leaking generator was downloaded, drained of fuel, inspected, recertified and reloaded. The previous contents of the fuel tank were also wiped up and disposed of.

Further investigation of this incident reveals several documentation mistakes. First of all, the shipment certification (DD 1387-2) did not indicate the generator contained fuel. The appropriate quality control paperwork was also missing. After the incident, the non-USAF preparer confirmed that no, the generator had *not* been prepared IAW AFR 71-4. Seems in the past, there had always been an ALCE team, or an aircraft loadmaster to prepare the items for shipment and complete the necessary documentation. Poor documentation coupled with the "short time frame" for preparation of the shipment, and you can see this episode was an "accident waiting to happen."

OS

Smoke(ing) Mask

Yes, friends, there are hazards resulting from smoking the Surgeon General probably never even heard of. "Fer instance . . ."

Take the crew of a certain C-141B. The left-seater decides to light up a stogie. Sitting in the jump seat, the instructor pilot, not wishing an untimely and premature death due to smoke inhalation, pulls on an oxygen mask and goes to "100 percent" and normal. According to the report, the hose and mask were temporarily "disconnected and then reconnected." The jump seat pilot took a deep breath, then reasoned pure oxygen should not smell like burning rubber. He attempted to clear the foul-smelling fumes from his mask by going to "emergency" on the selector. The acrid smell of rubber/tobacco remained, so he removed the mask. Imagine his surprise when he saw smoke coming from the face mask? Investigating further, the jump seat IP stood up and disconnected the mask from the regulator. Seeing a "2-foot" sheet of flame leap from the regulator hose, he dropped the mask on the floor and the hose fell on a nearby helmet bag. Said bag and hose are now burning furiously as members of the crew start to grab fire extinguishers in hopes of stopping the smoking mask, hose and bag.

With the cockpit now thick with smoke, the appropriate commands are issued, but not carried out as per the Dash One. The young flight engineer, for example, did select max airflow and max cabin altitude, but inadvertently hit the left bleed duct overheat test switch which closed the number 1 and 2 engine bleed valves and stopped all airflow to the cockpit. The aircraft commander, in the right seat, initiated an emergency descent from FL390 and dialed in the appropriate transponder code and radio frequencies. Meanwhile, the left-seater turned off the crew oxygen shutoff valve and the fire subsided. Momentarily, that is.

In the descent, the pilot becomes "oxygen starved," and turns the crew oxygen back on. A large flash ensues and flames travel across the cockpit, contacting the engineer's panel and ceiling, and smoke once again fills the cockpit. This time, the left-seater pulls the emergency depressurization handle on the overhead panel. This fails. The electrical depressurization switch was never used. In another attempt to draw smoke away from the AC and the flight engineer, the left-seater partially opens the cockpit vent. Finally, the smoke starts to dissipate and the flight engineer realizes the numbers one and two engine bleed valve closed lights are on. He then hits the reset switch on the left bleed duct overheat test switch, the bleed valves open and the smoke starts to leave for good. The airplane is landed, *tout de suite,* engines are shut down and the passengers and crew evacuate without incident. The fire department then removed the slightly singed helmet bag from the cockpit.

Let me see, now. Doesn't AFR 60-16 say something about not smoking when oxygen is in use . . .!

AFTER DEADLINES

MAC AIRCREW TRAINING DEVICES are being replaced and updated to provide improved aircrew training. Old C-130 simulators are being replaced MAC-wide with new Singer-Link versions. Eight analog simulators are being replaced by 10 new digital flight simulators and two cockpit procedures trainers. All are scheduled to be delivered by late June 1983. Existing C-141 flight simulators are undergoing refurbishment by Burtek, Inc. and are to be completed on a staggered schedule from June 1983 to November 1984 at six different bases. The CH-3/HH-53 helicopter flight simulators are under refurbishment by Eyring Research Institute, Inc. with scheduled completion in August 1983. The C-135B flight simulator refurbishment by Singer-Link is scheduled for completion in October 1985. Future refurbishment of C-5 mission flight simulators is programmed for 1986. Information courtesy HQ MAC/LGMA.

SAFETY OFFICER PROMOTED TO MAJOR--Captain Dan G. Driggs, Chief of Safety, 834 ALD, Hickam AFB, Hawaii, was recently selected for promotion to major.

ARRS MUSEUM AT KIRTLAND NEEDS HELP--The Aerospace Rescue and Recovery Service Museum at Kirtland AFB, New Mexico, has a continuing need for pictures, patches and other mementos of air rescue. Of special interest to the museum are mission narratives and photos. The ARRS museum is attempting to preserve the heritage of air rescue in keeping with the motto, "That Others May Live." Please send your donations or loans of your material to: ARRS Museum Curator, 1550 TCHTS, Kirtland AFB, NM 87117. If you have any questions, contact Captain Bill Gillin, Autovon 244-4954 or Commercial 505 844-4954.

MAC NOMINATES SEVEN FOR INSTITUTE OF NAVIGATION AWARDS--MAC has nominated seven officers for the Air Force's Institute of Navigation Awards. Captain Randy Durham, 435 TAW; Captain Michael Cutter, 314 TAW; Major Daniel Filigno, 438 MAW; and Major Charles Slaton, 63 MAW; were nominated for the Superior Achievement Award for outstanding performance as a practicing navigator. Major Michael Sieverding, 314 TAW, and Captain William Miller, 437 MAW, were nominated for the Thomas L. Thurlow Award. This award is presented for significant innovation toward the general advancement of the science of navigation. Major Jeffrey B. Pearson, 314 TAW, was nominated for the Norman P. Hays Award for outstanding management contributing to the advancement of navigation. (MAC News Service)

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Nearing the active runway, a 747 crew noticed a "follow-me" bus on the runway, apparently conducting a routine runway check. The jumbo was cleared for takeoff and taxied into position. Now the RVR at this point was less than 1500 meters, and since the bus was no longer in sight and takeoff clearance had been received, the crew *assumed* the runway was clear. As the 747 passed 140 knots and the visibility decreased to about 600 meters, the bus suddenly reappeared, still on centerline and still headed in the same direction as the hurtling airliner. Realizing an abort would be both futile and extremely dangerous, the 747 captain increased power and rotated the jumbo 10° to avoid the bus. Feeling no impact, the crew informed the tower they had avoided a collision with the bus. Tower response indicated they were unaware of the presence of the vehicle. Unfortunately, while the 747 nose gear cleared the bus, the body gear doors did not, and sliced through the roof. The aft portion of the airliner then crushed the rear of the bus to a height of less than 3 feet while compressing the roof down to the level of the dash. Miraculously, the driver escaped with only a few scratches, *although he was hospitalized because of shock.* Small wonder! —Adapted from *Flight Lines*